MADRAS HEALTH EDUCATION

One of the disturbing features of plague incidence in Kolar district is that more and more taluks are getting infected and at present 7 out of the 11 taluks are infected. Besides, some of the heavily infected taluks are geographically contiguous with the neighbouring plague endemic taluk of Hosur, Salem district, Madras State and Palmaner, Punganoor and Madanapalle taluks of Chittoor district, Andhra Pradesh.

Plague has been completely eradicated trom the whole of the Madra State from 1953 onwards except in Hosur taluk, Salem District which is contiguous with the endemic area of Kolar district in Mysore State. From 1953 to 1958 there was only a smouldering infection in this taluk but since 1959 more and more villages are getting infected as shown below.

Plague incidence in Hosur taluk, Salem District since 1953.

Year	No. of villages infected	No. of attacks	No. of deaths
1953	2	9	6
1954	4	8	6
1955	...	...	...
1956	1	2	1
1957	1	4	1
1958	1	1	
1959	4	17	7
1960	7	29	14
1961	10	21	8
1962	31	100	20

In Chittoor District in Andhra Pradesh Plague completely disappeared during the years from 1957 to 1960, but since 1961 it shows signs of recrudescence as shown below. At present it is confined to a few villages in Palmaner taluk only.

Plague incidence in Chittoor district since 1957.

Year	No. of taluks infected	No. of villages infected	No. of attacks	No. of deaths
1957	...	...	...	...
1958	...	...	...	...
1959	...	...	...	...
1960	.	-	...	...
1961	1	1	2	1
1962	1	6	20	3

From the foregoing reviw of the plague situation in the three adjacent areas it is clear that although plague had disappeared from the rest of the three States it is smouldering actively in Kolar district and its neighbouring areas in Madras and Andhra States and shows steady and rapid signs of spread to adjacent areas. This constitutes a real threat and socner or later more and more areas are likely to get infected unless very energetic and effective measures are carried out early not only to control the infection but even to eradicate it.

Plague preventive measures :

In Madras State D.D.T. was used extensively in all the plague endemic areas for the control of plague from 1950. Due to the systematic and regular use of D.D.T. plague has been completely eradicted in all the districts except in Hosur taluk. Salem district. All villages in the endemic area are treated with D.D.T. once every year. All rat burrows are insufflated with 10% D.D.T. dust and all rat runs are dusted with the same powder. In all plague endemic areas qualified Health Inspectors are appointed as Plague Inspectors with sufficient number of field units. for regular anti-plague work throughout the year. The following places have anti-plague staff working throughout the year.

Place	No. of Health Inspectors	No. of anti-plague units	
Hosur Taluk	5	15*	(One unit
Nilgiris district	3+3 (Plague Overseers)	12	consists of one
Coonoor town	1	3	maistry
Ootacamund town	1	3	and two
Coimbatore town	1— (Plague Overseer)	8	mazdoors.)
Talavady (firka of Coimbatore district)	1	3	

A Special Plague Officer was in entire charge of the investigations, supervision and direction of all plague control measures in the State till 1957.

In Chittoor district (Andhra Pradesh) the plague preventive measures are on the same lines as in Madras State. All the plague endemic villages in Palmaner, Poonganoor and Madanapalli taluks of Chittoor District and all villages within a belt of 5 miles from the Kolar district border are being treated wtih D.D.T. once every year as a plague preventive measure regularly. One Health Inspector on plague duty and three field units are working throughout the year in these border areas. Since March '61 cyanogas is being used for insufflation of rat burrows instead of 10% D.D.T. dust. Further, the roof wall and floor wall, angles of houses are also sprayed with D.D.T. suspension.

In Mysore State, great reliance was placed on the National Malaria Control and Fradication Programmes for the prevention of plague outbreaks all these years. It was believed that the disappearance of plague from most of the districts in Mysore State was due to the collateral benefit derived from the D.D.T. spraying done in N.M.E.P. Observations carried out in the

Malaria Investigation Laboratory, showed that the flea indices in the D.D.T. Sprayed villages were kept under control. It is difficult to undsrstand how D.D.T. sprayed on the walls could control the breeding of fleas in the rat nests in rat barrows. It was clearly shown by Dr. K. C. Patnaik that tke disappearance of plague from many of the districts in Mysore State can hardly be attributed to the activities of the National Malaria Control and Eradication Prŏgrammes—*During the off season for plague* no systematic attempt is made either for the control of rats or fleas by cyanogas fumigation or insufflation of rat burrows with D.D.T. or any other insecticides in any of the plague endemic villages. During plague infection, the district health staff attended to the anti-plagpe measures. The anti-plague inoculation is done by the nearest Medical Officer while the Health Inspector concerned recruits labourers from the local village and spray the houses with D.D.T. suspension. Even the spraying is confined to the roof wall angle and floor-wall angle to a distance of 1½ feet on either side. No attempt is made to spray the entire floor. No attempt is also made to insuifate the rat burrows with D.D.T. dust for the destruction of infected rat fleas. There is no separate trained staff as such for anti-plague work. Even the labour recruited locally is untrained. It is no wonder that several villages had repeated infections during the past 3 years wnich only shows that the infection was smouldering in these villages. A thorough insufflation of all rat burrows and dusting or spraying of all rat runs and other rat harbourages with 10% D.D.T. or B.H.C. dust perhaps would have prevented such recrudescence of plague in those villages. For the last few mcnths B.H.C. is being spsayed in the infected villages (angle spray) instead of D.D.T. as fleas have been found to have developed resistance towards D:D.T.

DEVELOPMENT OF RESISTANCE OF FLEA POPULATION TOWARDS D.D.T.

Field observations in the Nilgiris district where extensive investigations have been carried out prior to the large scale introduction of D.D.T. as a plague preventive measure have shown that in villages where rat burrows have been insufflated with 10% D.D.T. dust and all rat runs and othor rat harbourages

dusted with the same product, the general flea index in a susceptable flea population can remain below one for a period of nearly 18 months. Based on this observation all the plague endemic villages in the Nilgiris district were regularly subjected to D.D.T. insufflation and dusting once every year regularly. In the course of about 3 years plague was completely eradicated from the district and it has remained free since 1952. Ever since 1950 all the plague endemic areas in •Madras State are regularly subjected to this measure once every 10 to 12 months. Periodical Rat flea surveys were carried out regularly in some of the more important villages to find out the relative suspectibility of the flea population to D.D.T. There was no marked variation in the suspectibility of the fleas to D.D.T. till recently, although the flea indices in the various places showed a tendency to rise above the expected figures. Recent investigations in some of the D D.T. treated villages in Hosur taluk have shown that there is a rapid build up of the flea population in these villages as shown by the flea indices, a short period after D.D.T. treatment. In some of the villages the flea indices ranged from 3·2 to 4.9—three to four months after the D.D.T. treatment. In other villages it has remained below 2 to 3. during the same period. Further, there have been instances where plague broke out within three months after D.D.T. treatment. From these findings, it is evident that the flea population in the villages in Hosur taluk has become resistant to D.D.T. due to repeated exposure to the chemical during the last several years.

Regular rat flea surveys carried out in some of the villages in Kolar district following D.D.T. spraying with 75% wettable powder 112 mgms per sq. foot between 1956 to 1960 indicate that the flea population was quite susceptible till 1958. Towards the end of 1959 it showed a tendency to rise and at present there is definite evidence of a rise in flea index in D.D.T. sprayed villages. A perusal of the available figures shows that the flea indices are not high and perhaps the fleas can still be controlled to some extent by insufflation of rat burrows with 10% D.D.T. dust instead of mere spraying the roof wall and floor-wall angles with D.D.T. suspension.

Rat flea surveys have also been carried out in some of the villages in Chittoor district insufflated with 10% D.D.T. dust as a regular plague preventive measure. These figures also suggest the development of resistance of fleas towards D.D.T.

From all available data it looks as if the fleas in the plague endemic villages which were subjected to regular D.D.T. insufflation and spraying for the past few years have developed resistance to D.D.T. in varying degrees.

Therefore an immediate change in the anti-plague measures is necessary as D.D.T. may not be of much use either at the time ot plague outbreak or as a preventive measure hereafter. It is most unfortunate that plague could not be eradicated from the present areas before fleas developed resistance.

CO-ORDINATION OF PLAGUE PREVENTIVE MEASURES

From the above review of the Plague situation, it is evident that plague is spreading rapidly to several villages in Kolar district and to some villages in the neighbouring taluk of Hosur in Salem district and Palmaner and Punganoor taluks of Chittoor district. It is also evident that plague preventive measures differ considerably in the three areas. While there are sufficient number of trained anti-plague staff during plague preventive measures throughout the year in all the plague endemic villages in Hosur taluk in Salem district and the Palmaner and Punganoor taluks of Chittoor district, there is no such staff in the heavily plague endemic Kolar distrtct and no off season anti-plague measures are being carried out in the villages for the prepentive of plague outbreaks.

Therefore it becomes necessary that a co-ordinated approach regarding policy, technique etc., is made towards the control, prevention and eventual eradication of plague from these three plague endemic areas in Kolar district and its neighbouring taluks in Salem and Chittoor districts.

Detailed recommendations have been made towards the implementation of above programme for the eradication of plague in the endemic areas of each of the three Staies and

these proposals have been forwarded to the Ministry of Health Central Government, Director-General of Health Services, the Directors Public Health and to the 3 State Governments concerned for necessary action

Since fleas have been found to have developed resistance to D.D T. it becomes necessary to replace D D.T. by other residual insecticides. B-H.C. 10% dust has been tried in place of D.D.T. and it has given fairly good results for the present. But since D.D.T. and B.H.C. belong is the same family of chlcrinated hydrocarbon, it will not be long befcre fleas develop resistance to B H.C. also. Unfortunately there is no insectcide at present available which can completely replace D D.T. " Diazinon " one of the organophosphorus group of insecticide has been triad in the field but its residual action is very limited.

Therefore it becomes necessary to reintroduce the use of cyanogas for the control of plague. Besides cyanogas, active measures have to be undertaken for the destruction of roderts by rat poisons like barium carbonate, zinc phosprick, trupping etc. Well organised and intensive measures have to be undertaken on a large scale as suggested for the eradication of plague from the present endemic foci—and a co-ordinated approach to the problem is necessary by all the 3 States concerned.

Nation in Emergency Can't Pick it's Health . . . .

Nation in Emergency should be strong and Healthy so that the Enemy be driven out and keep our Tri-colour Aloft. Get yourself and your family against infective Diseases.

A Review of Smallpox Eradication Education Programme Organised in Tanjore District in July 1963

SMALLPOX Eradication Programme is launched in Madras State on the basic principle that if the State is (at least 85%) covered by Primary vaccination and revaccination at one and the same time and this state is maintained for a period of 5 years the incidence of Smallbox will be completely eradicated.

Area of operation

The Government of Madras have launched the programme from first March 1963. It will be in operation for 1963—64 in 8 development districts and two revenue districts of Kanyakumari and Nilgiris. Rest of the 8 development districts will be taken up during 1964—65.

Staff

In each development district the work is entrusted to the health staff of the Panchayat Union and a special additional staff posted to the Panchayat Union at the rate of one Health Inspector for the Panchayat Union area and one Health Assistant in each 15,000 population. The entire scheme in the district is under direct control of District Health Officers and is guided by Assistant Director of Public Health at the State level. The existing staff and the additional special staff are directly responsible for carrying out the eradication programme in a planned way.

Plan of work in each village

Each Unit of approximately 2,500 population is covered during a period of one week.

Enumeration

In the beginning of the week enumeration of all people in the village is taken up and the villagers are informed about the programme so that they can give their co-operation for it.

Vaccination

In the second portion of the week, the actual operations. that is vaccinations, are done to cover the entire population in this unit

Mopping up

On the last day of the week, temporary absentees are covered by vaccination.

Preparation in a village

One week before the visit of the special staff to the village, the Health Inspector of the Panchayat Union visits this village, meets the leaders and prepares for the staff to stay in the village for one week during operation so that when the special staff reach the village the people are ready to receive them and the programme

Verification of Results

After the operation, i.e vaccination is over, the Health Inspectors of the Smallpox Eradication Programme and the Health Inspectors of the Panchayat Union level visit the village and verify the results of vaccinations. This pattern of work is carried on in all the villages in the panchayat union area as per a programme fixed in advance. The previous experience of the Smallpox Eradication Programme in the Pilot districts of Chingleput, North Arcot and in city of Madras shows the difficulty in getting adequate response from the people. The expected percentage of coverage (85%) of population was not reached in any of the three areas mentioned above.

Education along with Service

It was decided to have an educational programme to go hand in hand with the Service Programme of Smallpox Eradi-

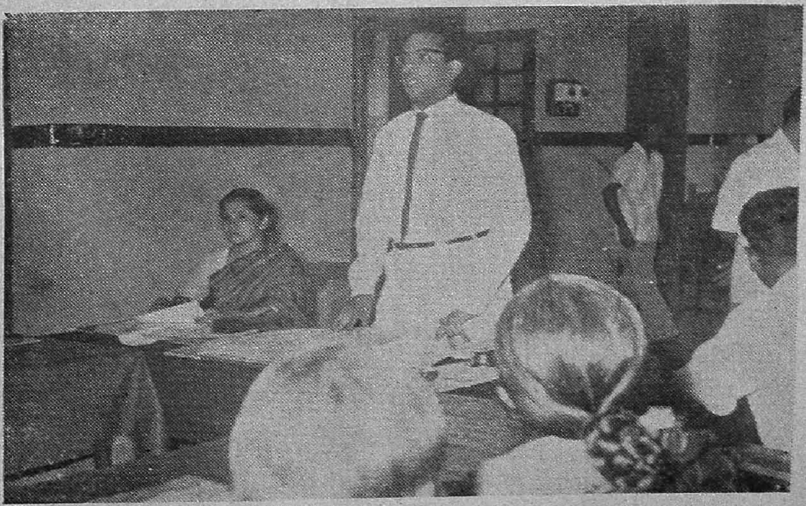
cation Programme so that many other people other than health workers will give their active support to educate the people so that they can intelligently respond to this programme. This is absolutely essential to reach the expected percentage coverage in all our villages within the intensive period of two years taken up for Smallpox Eradication Programme in all the districts in our State.

In order to develop a good educational programme wit the local district staff, the following special activities were taken up in Tanjore District to begin with.

At the request of Director of Public Health the Collector convened a conference of District Officers. The District Superintendent of Police, the District Medical Officer, the Revenue Divisional Officers and other District Officers were present at this confernce.

Collector's Address

The Collector in his presidential address stated that while other countries in the world eradicated this disease, India and



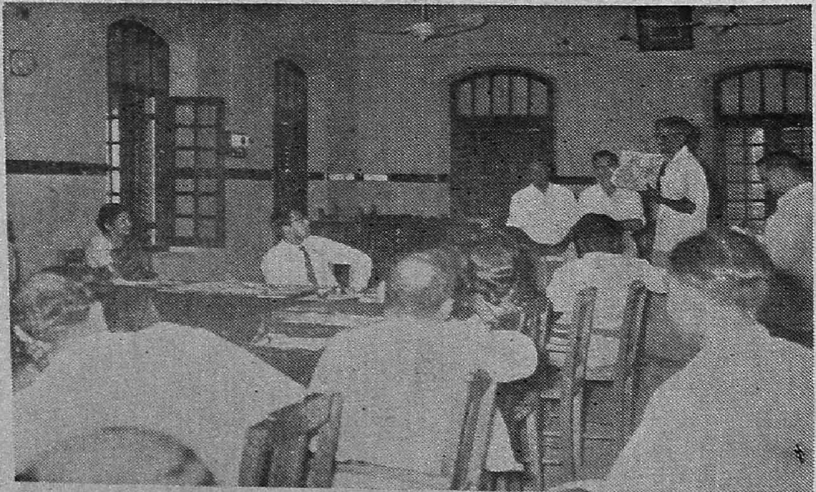
Collector of Tanjore addressing the District Officers.

Pakistan alone are the reservoirs of the disease. All channels for publicity should be used at all levels. To educate the people to know the importance of the disease and its prevention, radio can play an effective part. There are about 12,500 radio sets in all the panchayats. So Health Education on Smallpox can be done through Radio Rural Forums. The aim of the Radio Rural Forums is to listen and get the forum to discuss and then plan for Action. People actually listen to the programmes in an organised way and come out with interesting questions. Thus people are involved by this method.

Also instructive films on smallpox should be used as media in educating the people.

Director Public Health's Speech :

The Director of Public Health in her inaugural address pointed out how even 1,500 years ago, there was a practice in India where there were professional Brahmin inoculators who voluntarily inoculated persons against Smallpox making use o



A flash card story is being demonstrated to the District Officers.

the Smallpox pustule material for Inoculation. These voluntary workers were in good demand and according to estimates it

appears that 81% of the people took to such smallpox inoculations.

As demand went up other persons took up this work and the quality of the work suffered.

Today in Smallpox Eradication Programme trained professional vaccinators are employed to give vaccination and a coverage of 25% of the population is expected.

A National Movement and not merely a "Health Campaign."

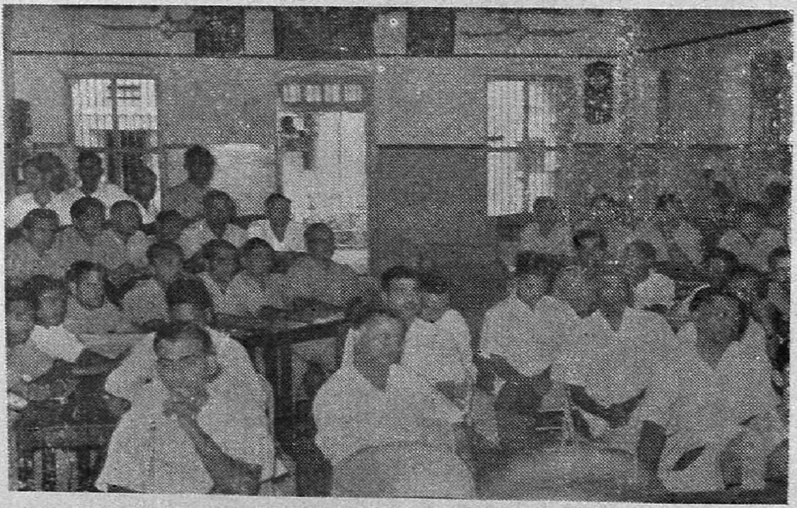
She pointed out that eradication programme is not *just a progrmme for the health department but it should be viewed as a National movement in*which all other departmental officers' people's representatives representatives of Women's Organisations and representatives of schools have an important part to play, to prepare the community to respond to this programme without any anxiety.

At the end of the meeting a flash card story dealing with how to get support of other people was demonstrated.

Director of Public Health addressing Health Inspectors.

The Director of Public Health and other health staff addressed the Women's Welfare staff meeting. An interesting flash card story developed by House Surgeons working in Poonamallee Health Unit area during the Public Health intenship was demonstrated by Personal Assistant, Research cum Action Project, Poonamallee.

On 23rd July, the training programme in health education for the Health Inspectors of Panchayat Union Councils, Smallpox Eradication Health Inspectors was conducted.



Health Inspectors listening to the address by D.P.H.

Persuasion and not Persecution

The Director of Public Health in her inaugural speech said that Smallpox Eradication Programme is a special programme and appealed to all the Health Inspectors for their active co-operation. She said our slogan must be "PERSUASION AND NOT PERSECUTION, EDUCATION AND NOT LEGISLATION."

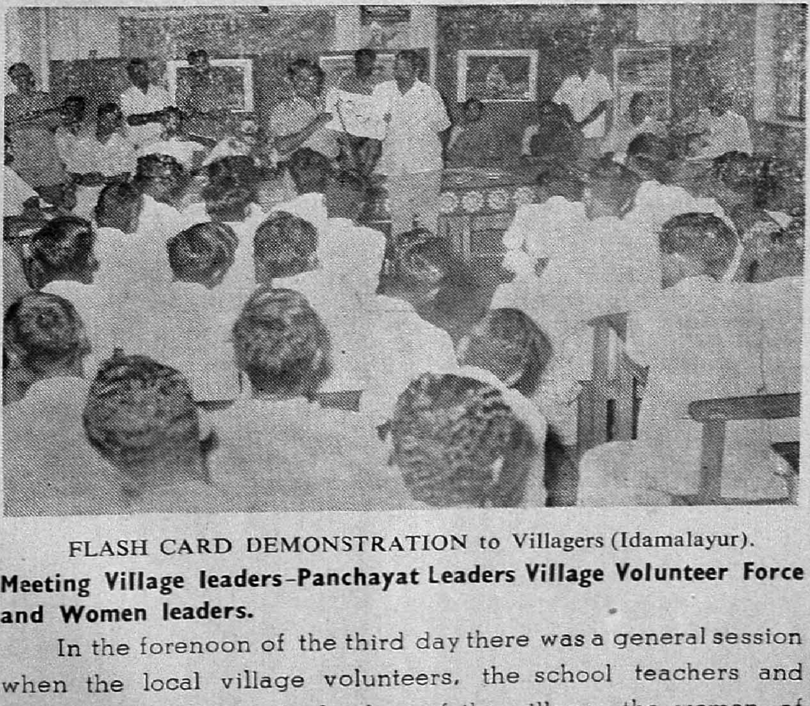
Training in Technique of vaccination

Practical training was given on proper techniques of vaccination and actual demonstration on improved health

education methods to educate individuals, groups and the mass using simple, effective educational aids like flash card stories and flannelgraph stories. These demonstrations were followed by practice sessions as a part of the training.

Field Training and its value

The most important part of the training was the field training given in one of the villages on the third day where the trainess applied in real field situation what they learnt during the training period.



FLASH CARD DEMONSTRATION to Villagers (Idamalayur).

Meeting Village leaders-Panchayat Leaders Village Volunteer Force and Women leaders.

In the forenoon of the third day there was a general session when the local village volunteers, the school teachers and panchayat members, the leaders of the village, the woman of the village were present at the local high school premises in Idamalayur village (Nidamangalam Block) when the scheme of the eradication programme and the educational aspects of the programme were discussed.

Role of village leaders in education in Smallpox Eradication Programme

The role of the various village leaders and other sections of the community were explained and the demonstrations were

D. P. H. addressing the Village groups.

given by the Health Inspectors (trainess) using the simple flash card stories demonstrated to them on the previous day.

There was a very good response from the people in the village during the afternoon.

Work in the streets in the villages

The Health Inspectors under training went in four groups in different streets of the village with their trainees met the leaders men and women individually and discussed with them the educational aspects of the programme and how they can help to achieve 100% response during the vaccination week in t hat village.

School Visit

This was followed by visits to the schools and to the women groups in the village,

This programme will be continued throughout the eradication phase of the programme so that people will be prepared to give their maxium co-operation and active help so that the expected percentage of coverage can be achieved in this programme. Tanjore has so for given a very good lead and it is hoped that all our districts will follow the lead in this difficult but important work of education along with eradication programme to wipe out the deadly scourge "Smallpox" from our State.

Many of the principles we have been using in health education might be questioned as to whethar they can he dignified by the term "principle". To me a principle has more meaning if it is stated as a hypothesis—a hypothesis which has been tested and lends itself to further testing. Thus many of the principles in current use might better be called maxims. They are simple tools like the shovel and the hoe and some of them are losing their edge for effective work because inherently they offer no guide lines as to when or how the tool should be used. For example, "learn by doing," "start where people are," "involve all the people", etc., may be good tools but what do they mean? *How useful*, as they stand, are they in community diagnosis, programme planning or programme evaluation? It has become *increasingly evident* that we who are practioners in health education must have not tools but tested hypotheses to guide us *in what rapidly* becoming a social engineering job. The practitioner needs basic concepts to help him in the diagnosis of a situation and concepts which enable him to develop and and use methods appropriate to the diagnosis.

—Dorothy B. Nyswander.

PUBLIC HEALTH PROGRAMMES

FOUR ESSENTIALS TO BE MET

RESPONSIBILITY OF PEOPLE

By

Dr. J. T. CORNELIUS

THE Responsibility of a Government for the health of the people is considered in all civilised countries to be of paramount importance. Disraeli States: "The public health is the foundation upon which resposes the happiness of the people. The care of the public health is the first duty of a statesman". Equally, it is the responsibility of every intelligent, educated citizen of a democratic society to provide the leadership in carrying out public health programmes.

The constant and steady development in medical sciences provides sufficient knowledge to prevent and control human illness and disabilities. For the efficient functioning of a public health department there are four essential conditions which must be satisfied: (1) Public Health work must be in the hands of qualified public health officers and in our country, the Central Government should form an all India Public Health Service (2) Political considerations should not determine the appointment of Public Health personnel nor in any way influence public health policies. (3) Public Health programmes should be planned so as to get the best returns for the money spent. At present, Government's financial support represents only a small fraction of a rupee of the tax-payers' money. (4) Governments should realise that money spent on

public health will yield large dividends in terms of better health, happiness and productivity of the people.

DEPARTMENTS ROLE

Group action is centralised in the Public Health Department of every State for the control of communicable diseases, the provision of safe water supplies, sanitary supervision of milk and other foods and waste disposal, school health service, industrial hygiene, hospitalisation, disinfection, immunisation for those unable to provide these services for themselves and the dissemination of information relating to family planning and nutrition.

The most important of these is the control of communicable diseases such as smallpox, cholera, dysentry, tuberculosis etc. The strongest link the medical practitioners can forge with the Public Health Department is by notifying the Health Officer promptly as soon as he makes a diagnosis of communicable disease among his patients. On receipt of such information, the public health nurse should visit the house of the patient and arrange for his or her isolation and specific treatment and the concurrent disinfection, of the infective discharges of the patient and articles soiled with them and immunisation. Wherever available and necessary, of the contacts, and make preliminary investigation as to the source of infection of the patient, through tracing the contacts. An adequate number of public health nurse should be trained and employed to meet the demands of the Public Health Department for this essential and urgent work in our country. A Public Health laboratory should be established for clinical diagnosis and water food and milk examinations.

In tropical countries, a considerable number of diseases of man and animals are transmitted by insects, some mechanically; by house flies in typhoid fever, biologically, by fleas in bubonic plague and mosquitoes in malaria and filariasis (elephantiasis) and lice in relapsing fever, and typhus fever. For the destruction of these insects, we have powerful insecticides, which every public health department has or

should have for use in controlling insect-borne diseases. Most of these insect-borne and animal-borne diseases such as bovine Tuborculosis and rabies constitute definite community health problems and must depend on group or community action for their control.

WATER BORNE DISEASES

Water borne diseases are cholera, typhoid, dysentery and diarrhoea. Epidemics of these diseases have been traced to the contaminated sources of water supplies by sewage or imperfect methods of disposal of excreta. Provision of safe water supplies and effective methods of sewage disposal are preventive methods adopted to control these diseases.

With greater industrialisation of India, Industrial hygiene will come into prominence. The chief aim is to protect the health of the worker, whether in mines, factories, shops or on farms, and in various industrial projects. The health problems presented in this field call for group action with employer, employees and society co-operating with one another. In industry, the conditions which need supervision and control are dusts fumes, temperature humidity, sanitation, industrial poisons fatigue and accidents.

Thers are also other factors in public health, such as maternity and child care and family planning clinics, nutrition, control of venereal disease and prostitution which form important parts of public health work and administration which affect the standard of health in a community.

PUBLIC INTEREST IN U. S.

Concentrated group or community action is essential in the working of the Health Department and it is, therefore, necessary that any type of organisation which is governmental should also be supported by non-governmental bodies. In Western countries life insurance companies provide health information and periodic health examinations to the insured as it is profitable to prolong the life of the insured in their own interest. In the U.S.A. there are foundations like the Rockfeller

Foundation and the Milbank Memorial Fund which make large contributions to the training of public health personnel, and for public health research and work at the schools of hygiene Tne A nerican Social Hygiene Association is supported largely by gifts. Organised health work is based on group action and has proved that it is essential for national welfare in Western countries, apart from medical services, through hospitals and clinics

We, as intelligent citizens of a Welfare State Should acquaint our selves with the public health needs of our country and understand the public health situation to find an answer to the problems.

"...generally speaking, the most pressing need of mankind in the field of health at the present time is perhaps not more knowledge, even of method, but the practical application of already existing knowledge. Only a very limited group of people in the world, if any, today enjoy fully and without limitations the benefits which are available theoretically. Diseases flourish everywhere which we have knowledge enough to fight. Let me just mention a few of them. Tuberculosis—we know how to find it, how to treat it, we know the methods for conducting campaigns in advanced as well as in non-advanced countries. Nevertheless, tuberculosis is on the march forward in many parts of the world. We know how to prevent, treat, even eradicate, malaria, and you all know how far we still are from achieving this goal, although the progress is impressive. More or less similar situations exist for a host of other diseases. .."

—Dr. Karl Evang
Chief Delegate of Norway
speaking at the XV World
Health Assembly.

The Public Health Movement in Great Britain—A Historical Study.

By

K. E. VAIDYANATHAN, M.A.

I. INTRODUCTION

THE great forward strides in public health administration in recsnt decades have their roots in investigations and reforms dating back to a little more than a century, mainly in Great Britain. Even though the war against disease and death is as old as man himself, his power over his environment remained unchanged till the end of the 18th Century. For a long time the filth, squalour and disease of communiiy life were apparently accepted as a usual and normal state of affairs. *It was in England that the living conditions created by the Industrial Revolution first aroused great concerned leading to the developments in the field of public health.* These developments were considerably aided by the spectacular advances in medical and sanitary sciences during this period.

How England developed its Public Health administration.

The path of the public health movement in Great Britain was by no means smooth. There were several abstacles such as the lack of a proper administrative machtnery, funds, trained personnel and above all, the lack of health consciousnesa among the people. It took nearly a century to overcome these difficities and to evolva a pattern of public health administration suited to their needs and conditions. During this period, the outlook of the public health movement itself has undergone considerable change. The early efforts were directed at controlling such infectious as yellow fever, typhoid, diarhhoea and enteritis, the communicable disease of childhood and tuberculosis. As a result of two major developments (1) the

extraordinary success achieved by medical science and public health administration in the control of infections, and (2) the progressive aging of the population—the mortality picture has undergone marked changes since the turn of the century. Several of the infectious diseases common during the previous century have been virtually eliminated and tuberculosis and pneumonia have been reduced to negligible proportions.

On the other hand the diseases characteristic of middle life and old age account for the largest share of mortality occurring at present in Great Britain. The increasing prominence of these diseases has attracted attention to the need for intensive research into the degenerative diseases and cancer. It also necessitates a re-orientation in the view point of public health officers, voluntary health agencies and physicians to meet the changing needs of the communities in that country. *Another major landmark of the public health movement has* been the shifting of emphasis from 'control' to 'eradication' of diseases and a reelisation of the effect that (1) environmental and (2) social factors have on the well-being of the people. As a result of the, a new discipline of public health work has come into existence which enlists a wide variety of specialists including administrators, Epidemiologists, Bacteriologists, Sanitarians, Health educators, Social Scientists, Vital statisticians and a host of Physicians and Nurses particularly skilled in applying the advances in medicine, education and social science.

Underdeveloped countries like India are at least 60 years behind Great Britain in publice health, and only very recently the various health programmes are beginning to have any significant effect on the life expectency of the people.

Public health administrations of India have very much to profit from the experiences of countries like Great Britain, U.S.A., Sweden etc., which have largely overcome such problems. An attempt has been made in this article to exemine the trends in the public health movement of Great Britain with particular reference to the changes in mortality rates and the principal causes of death.

2. THE PRE-CHADWICK ERA

The public health programme, in a broad and comprehensive sense was initiaied by Edwin Chadwick's Report on the Sanitary Conditions of the Labouring Population of Great Britain (1842). In the earlier period the progress was slow, but the foundations were securely laid by the individual efforts of numerous medical and social workers. A significant event in public health history occurred in 1662 when John Graunt (1620-1674) of London, himself not a physician published a pamphlet on Bills of Mortality, the first serious attempt to study what has now become the well-recognised science of vital statistics. This was a weekly list of deaths with ascertainable causes, many of them with quaint nomenclature. His reports laid the foundation for the modern study of mortality and morbidity statistics as expressed by tables and graphs.

In the 18th century, as the Industrial Revolution gained momentum the environment of the new conglomerations of human dwellings, particularly in the woodlands and the north gave rise to increasing ill-health. It was at this time that Thomas Percival exposed the risks particularly of mothers and children, of overcrowded towns living in factory life, and this pioneered the British Board of Health.

During the early part of the 19th Century the population of Britain grew fast, resulting in great congestion in towns and cities. Whereas industrial development produced new hazards especially to women and children, the revolutionary changes in British agriculture vastly increased the number of paupers and as a consequence epidemics of infection with heavy mortality swept through the towns. In 1829, cholera began to spread through Europe and reached Britain in 1831. *This led to attempts to establish local boards of health throughout Britain.*

3. THE CHADWICK ERA

1834 witnessed measures to reform the poor law which at a later date proved to be of great significance to the growth of public health. Poor law reform was the result of a Royal Commission of which Edwin Chadwick was a member and he

was largely responsible for the Report. *Chadwick's scheme of a centralised machinery with local boards of guardians considerably influenced the growth of public health services in Great Britain.* The boards of guardians, operating universally over unions of parishes and made responsible for providing medical care for paupers, appointed medical men in an official capacity. Chadwick, who became Secretary to the central Poor Law Commission, relied upon this large new body of official medical opinion for his social survey' The Sanitary Conditions of the Labouring Population of Great Britain' about which mention has been already made here.

Chadwick's Discovery–Health Depended on Sanitation

By now Chadwick had realised that expenditure on the paupers, and prevention of disease were but two facets of the same problem. He became interested in public health and made a study of sanitary engineering and other allied subjects. He came to the conclusion that (i) health depended on sanitation ; (ii) that sanitation was an engineering matter ; (iii) that an arterial system of water and sewage which alone would solve the problems of the new towns, must entail one local authority to administer all sanitary matters ; and (iv) that expert advisors on engineering and sanitary matters was essential. A Royal Commission set up in 1843 to enquire into the state of the large towns confirmed Chadwick's findings. The Public Health Act of 1848 established the General Board of Health with powers to create local boards. This was followed by appointment of medical officers and the starting of public health diploma courses

In 1858, the General Board of Health was dissolved and the powers transferred to the Privy Council At this time John Simon became the Medical Officer of Health to the Central Government and it was during his tenure of office that many far reaching changes were effected. *The Public Health Act of 1875 of Great Britain* envisaged (1) wholesome and sufficient water supplies ; (2) prevention of pollution of water ; (3) Provision of sewerage ; (4) Regulation of streets, highways and buildings ; (5) health of dwellings ; (6) Removal of nuisances ;

(7) Inspection of food ; (8) Suppression of disease ; (9) sanitary burial ; (10) regulation of markets. The Housing Act of 1890, required medical officers of health to report insanitary houses and areas and gave authorities powers with appeal to the Courts of demolition and closure.

4. PROGRESS DURING 20th CENTURY

By the turn of the Century, the machinery for dealing with the health aspects of environment had been securely laid and the struggle to remedy the ills of the Industrial Revolution was progressing fast. *Public health began to extend into the fields of social medicine.* It was at this time that Charles Booth's 'Life and Labour of the People of London. 1889-97' and Seebohm Rowntree's "Conditions of York 1901" brought out the importance of personal health care as a counterpart of environmental hygiene. The Maternity and Child Welfare Act (1918) required the Local (county and county borough councils) authorities to attend to the health of expectant and nursing mothers and of children under 5 years of age not yet in school. Professional midwifery started with the establishment of Central Midwives Board constituted by the Midwives Act of 1902.

The National Insurance Act of 1911, apart from providing medical sickness, maternity, disablement and sanitoria benefits, formed an entirely new approach to public health in which every doctor was concerned to seek adverse social and environmental factors. Inspite of the progress made, there was considerable dissatisfaction about the functioning of the differen agencies and this was laid at rest only by the creation of a separate Ministry of Health in 1917 with a medical man as its first Minister. *The Ministry of Health introduced a scientific approach, hitherto lacking in public health.* Local authorities could look to the Centre for advice, *and the new spirit of preventive and social medicine gained momentum.* In 1920, the interim Report of the Consultative Council on Medical and Allied- Services under Lord Dawson contained the elements of a national health service in which health centres were to play a prominent role.

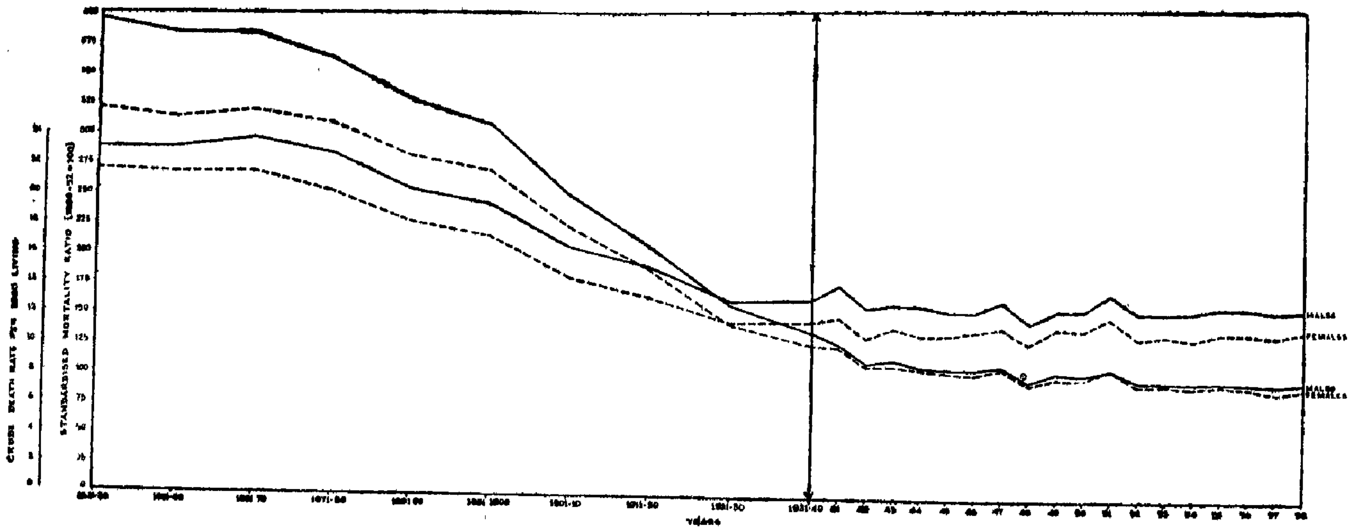
Public Health, both environmental and personal, now progressed at a great rate through a succession of Housing Act (between 1921 and 1936), The Mental Treatment Act (1930), The Midwives Act, (1936), The Factories Act, (1937) and The Food and Drugs Act (1938). In 1929, the Boards of Guardians were abolished and their functions were transferred to counties and county boroughs. Poor law infirmaries became municipal hospitals. The Local Government Act of 1929 also required the county councils to frame proposals in consultation with district councils for the appointment of full time medical officers of health.

After World War II, public health was, engulfed in a flood of social legislation. Acts dealing with education (1944), family allowances (1945), National Insurance, (1946), National Health, (1946) Town and country planning (1947), National assistance (1948) and children (1948) all provided the frame work of the welfare state which required a reassessment of the problems of community health. *The emphasis of public health began to shift towards social aspects of disease*, a change which was accelerated by the transfer of hospitals to a new authority and by the establishment of a comprehensive programme of medical care.

5. THE CHANGING CHARACTER OF PUBLIC HEALTH PROBLEMS

The ultimate test of success of application of public health mesures is their effect on disease and death rates. Study of trends in these figures is basic to pubic health policy. *An examination of mortality rates in Great Britain furnished in the Appendix gives an idea of the decline in the mortality during the period 1841 to 1950. The public health picture of Great Britain has changed over the course of the two centuries from that characteristically exhibited by an 'under-developed, to that of a 'developed' country.* High mortalities coupled with a high birth rate which maintained a small stationary population of about 8 million with a large number of children and a few aged persons have been replaced by low mortalities and a low birth rate; the present population of about 50 million is again static, but has fewer children and

MORTALITY TRENDS IN ENGLAND AND WALES



more number of aged persons. While this gives a picture of the changes in mortality and longevity the more important trends in public health problems that occurred during the period are discussed below..

(a) Ageing of population and increase in life expectancy

In the middle of the 19th Century, of 1000 persons, 66 were aged 65 years and over, and about 340 were children under 15. In 1958 there were 117 aged persons and 228 children in every 1000 of the population. The expectation of life had advanced from around 30 to 40 a century ago, to around 70 years in 1959.

(b) Control of Infectious diseases

The high specific death rates of the major infectious diseases had diminished to near vanishing point. Of 500,000 yearly deaths only 12700 were (1953) attributable to notifiable infectious diseases. Of these 70% were attributable to tuberculosis. The death rate from tuberculosis, which remained a major menace had declined during the preceding Century from 3000 per million of the pupulation to 200 and as a cause of death it had changed in the incidence of its greatest danger from the young, particularly female, worker to those over 45 years of age.

(c) Reduction of mortality among children.

Infant mortality had declined from near 250 to 23 in 1958 and the still birth rate since first registered in 1928 from 38 to 22 in 1958. The largest part of the enormous reduction related to deaths of infants after the first month of life. Of the remain ing infant deaths 60% were the result of immaturity and con-genital malformations. Thus the major loss of infants had become perinatal i.e., occurring before, during or shortly after birth The decline in the deaths of children was equally spectacular. William Farr, the first compiler of statistics to the Registrar-General after the passing of the Registration of Births and Deaths Act. 1836 recorded that between 2 and 3 out of every 5 children died before reaching 5 years of age. The mortality of children from birth to upto 4 years fell from 66 to 6.12 and

for children of 5 to 9 years from 9.05 to 0.49 per thousand living between 1841–50 and 1959. In 1850, 64% and in 1959, 4% of the total deaths were in children under 5 years of age.

(d) **Increasing prominence of degenerative diseases.**

92% of the deaths in 1959 were in persons over 40 years· 73% in those over 60 years and 50% in those over 70 years. Rather more than half of the deaths were attributable to the diseases of the circulatory system Neoplasms and the diseases of the respiratory systems are the next major group of causes of deaths. Thus 4 out of 5 deaths were attirbutable to conditions that were basically caused by the processes of wearing out. Infectious diseases although not the cause of high mortality still occasioned much morbidity. The returns of the ministry of national insurance (1952) shewed that 41 million lives were lost (i.e., over 25% of the total) from influenza, bronchitis, pnemonia, acute pharyngitis, tonsillitis and the common cold.

(e) **Incidence of mental illness.**

The amount of mental illness exhibited in psychoses, neuroses and psychosomatic disease is almost certainly very great, although from lack of information there is no exact knowledge. Half the number of hospital seats are filled with patients suffering from mental illness; a large fraction of absenteeism from industry is attributable to neurosis or psychosomatic disease.

(f) **Growing importance of occupational diseases**

Disease and death vary greatly in different areas and occupations and among sections and groups of the population. Rural areas of developed counties are more healthful than towns for persons over 40. In paticular the toll of degenarative disease is lower in the country. Infant mortality in Britain is disproportionately increasing with density of living. Widely divergent mortalities of various occupations reflect the different nature of the hazards; for example the standardized mortality ratio of agricultural workers is half the average for all workers whereas that of state quarry workers is three times as great.

Many diseases also vary with social grouping; for example, infant mortalities including still births and premature births, increase with the professional classes to the unskilled worker, in contrast, coronary thrombosis takes the opposite course.

6. NATIONAL HEALTH SERVICE & PUBLIC HEALTH

In 1948 the National Health Service Act of 1946 came into force which envisaged the provision of free medical care by general practitioners and in hospitals. It also made local authorities responsible for prevention and aftercare Broadly *the functions of local authorities included*: (i.) The provision of a health visiting service to give advice as to the care of children, persons suffering form illness and expectant and nursing mothers to prevent the spread of infection; the *health visitors' work was thus extended to the whole family and the opportunity was given to integrate her social work with medical care by the family doctor;* (ii.) The provision of the home nursing service for those who require nursing in their own homes; (iii.) the provision of a home help service for providing domestic help for households where such help is required owing to presence of any person who is ill, lying in and expectant mother, mentally defective, aged or child; the responsibiltiy for the prevention of illness, care of persons suffering from illness or mental defect and the aftercare of such persons.

A remarkable feature of the Public Health Act of Great Britain is the larger emphasis on the expanding functions of public health in the realm of social medicine. With the passing of this Act, authorised officers were appointed to deal with the problems concerning removal of patients to hospital and appointment of mental health workers for aftercare work. Further the emphaisis placed by the Act on the social aspects of disease was reflected in several directions Greater attention was paid to mental health and to those suffering from handicaps like epilepsy, mental deficiency and physical deformities. Arrangements were made for the welfare of the aged and for the detection and care of the problem family. Besides these

the activity of the hospitals under the local hospital boards, general practitioners under executive councils and public health authorities of the local administration became will coordinated.

7. CONCLUDING REMARKS LESSONS FOR INDIA

The public health movement of Great Britain has many valuable lessons for India. (1) First and foremost it reveals a close relationship between standard of living and national health and the interaction between the two. Poverty breeds sickness and sickness leads to low productivity and low productivity again leads to greater poverty and the vicious circle continues its operation indefinitely. India's Five-year Plans aim at breaking this vicious circle in two fronts: on the one hand there is the objective of increasing the standard of living of the people and on the other hand they aim at an improvement in the public health. These measures are bound to interact upon each other and lead to a more rapid improvement in both.

(2) Secondly, the improvements in public health in Great Britain has resulted in the "aging" of the population. Even though there are no signs of such a process taking place in India at present this is bound to happen sooner or later. According to a recent study relating to Madras State by the author the proportion of old people in the population will increase during the next 20 years. This may as well happen for the whole of India in which case during the next twenty years greater attention and funds will have to be diverted towards prevention of diseases characteristic of middle life and old age.

(3) Thirdly, the British Health Movement has highlighted the importance of a proper environment such as housing and sanitation for the maintenance of public health. This has a special significance to India when she is on the threshold of her industrial advancement. The process of industrialisation that is taking place in India poses many problems similar to those that

occurred during the Industrial Revolution in Great Britain. In the urban areas, the growth of slums, lack of adequate housing facilities, inadequate water supplies and the growing adulteration of milk, oils and other food stuffs offer considerable scope for the breeding of disease and presents a serious threat to public health. Another event that is characteristic of industrialisation is the growing importance of occupational diseases. An early realisation of these problems arising from industrial development and the perspective planning in health can enable India to ward off many of the evil consequences that followed the industrial revolution in Great Britain.

(4) Lastly, the problems facing the modern public health administration are complex. In India, medical facilities are mostly absent in the rural areas, and those which exist in the urban areas are far from adequate. The present situation in India is no better than the one that prevailed in Great Britain 60 years ago. But whereas Britain took nearly a century to evolve its system of public health administration, India is set on the path of achieving this in a much shorter period. The major obstacle to India's health programme is the lack of trained personnel–doctors, health educators Social Scientists nurses, midwives and dais and the primary task of the government will be to expand the facilities for the training of health personnel. Only if this "base" is created, can India think of a measure like the large-scale health insurance that has become an accomplished fact in Great Britain.

Health is not negatime: Health means more than Simply keeping out of a Physician's Office: It is a positime Condition of the body which gives us a long life of Test and enoyarey:

APPENDIX

MORTALITY TRENDS IN ENGLAND AND WALES

PERIOD	Crude Death Rate Per 1000 Living.		Standardised Mortality Ratio* (1950–52 = 100)	
	Males.	Females.	Males.	Females.
1841–1850	23.1	21.6	320	396
1851–1860	23.1	21.4	313	384
1861–1870	23.7	21.4	319	383
1871–1880	22.7	20.1	308	362
1881–1890	20.3	18.1	281	327
1891–1900	19.3	17.1	268	307
1901–1910	16.4	14.4	221	248
1911–1920	15.1	13.0	187	207
1921–1930	12.9	11.4	142	159
1931–1940	13.0	11.5	125	136
1941–1950	12.5	10.9	104	107
1941	14.0	11.8	124	127
1942	12.5	10.5	109	111
1943	12.7	11.1	109	114
1944	12.6	10.7	106	108
1945	12.3	10.7	103	106
1946	12.2	10.9	101	106
1947	12.9	11.2	106	108
1948	11.5	10.1	93	95
1949	12.3	11.1	99	103
1950	12.3	11.0	98	101
1951	13.4	11.8	106	106
1952	12.2	10.5	96	93
1953	12.2	10.7	96	94
1954	12.2	10.5	95	91
1955	12.5	10.9	97	93
1956	12.5	10.9	96	92
1957	12.3	10.7	94	88
1958	12.4	11.0	95	90

* CIVILIANS ONLY. 1914–1918 and 1939–1949. ; The Standardised Mortality Ratio shows the number of deaths registered in the year of experience as a percentage of those which would have been expected in that year had the sex/age mortality of a standard period (1950–52) operated on the age sex population of the year of experience.

Source: The Registrar General's statistical Review of England and Wales for the year 1958 Part III page 68.

It is a "Definite Must for India"

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WHEN most of the great nations of to-day were still undiscovered and unknown, India the cradle of civilization held the master-key to the mysteries of a profound knowledge and revealed a high standard of civilized way of life.

Our fore-fathers seem to have lived in a golden age, an age of contentment and harmony, plenty and pleasure. This is the past history of our country. But what about the present?

"Change is the order of life" and we have to change. The application of human intelligence and its penetration to the hitherto unknown objects and places, effected marvellous revolutionary changes in the entire concept of human thought and action. Even the edifice of the age old conception of human life, have been swept away by the current of science and technology.

Modern era is an era of problems. Among the numerous problems of the day, the rapid increase of population, particularly in underdeveloped and undeveloped countries of Asia, Africa and Latin America, is undoubtedly a threat to the progress of the world in general.

In this case it is rather interesting and more important to know the population trend in India, which is the largest democracy in the world, on the road to Progress. The rapid increase of population in India raises acute problems of feeding and caring the growing number of people. To meet the demand of the people, possible efforts must be made to increase production of food and necessities of life. Even then to avoid economic breakdown, control of population

growth is necessary. Further the nation has the obligation and duty to aim at a balance between numbers of people and the necessities of life in a context of optimum health, rather than mere survival. It is not survival, but satisfaction in every sphere of life of the people, is the aim of all progressive Governments. Control of Population growth, however cannot be dealt with as a problem of economic Science and Statistics. There are vital, moral and social aspects of sex, marriage and family, which are to be considered.

There is a responsibility laid on thoughtful people to approach the progrommes of family size. Individual family being the basic cell of society, planning for prosperity shall start from the lowest unit of Social order, namely family.

The first systematic census of India was taken in 1871 and population within the present boundaries of India was about 214 million. The growth from 1871 to 1921 was comparatively slow. In 1921 our Population was 248 Million. Within 40 years the population have increased nearly 438 million and now increasing at the rate of nearly 8 million a year is somewhat 2.1% per, annum.

TABLE :

Year	Million
1871	214
1891	236
1921	248
1951	361
1961	439

The increase in population is not mainly due to one factor alone. Factors such as the rapid decline of death rate, impossibility in migration to other countries, exodus from other countries as refugees, and finally the traditional high birth rate of the country, are reasons for such a rapid increase.

It is the excess of birth over death that brings this alarming increase in Population; speaking in another way, there is a steady decrease in death rate year, by year but the birth rate remains almost the same.

The yoemen services of the Public Health field staff and the marvellous achievements, arrested and uprooted many of the maladies which periodically swallow tens and thousands of life at a time. Malaria, Plague, Cholera, Tuberculosis etc are no longer a threat to India.

TABLE II	Birth Rate		Death Rate	
	1921 = 48 1	(per thousand)	1921 = 47.2	(per thousand)
	1951 = 40.7	,,	1951 = 27.4	,,
	1961 = 39.7	,,	1961 = 21.6	,,

Control of dreadful diseases and advances in medical treatment considerably reduced our death rate.

Census report of 1951 shows that the population of India, 356 million is four times what it was 150 years ago, and it also forecast that our population in 1980 will be more or less double the present number i.e. from 438 million bringing it up to nearly 800 million.

It is found neither industrialisation nor intensive cultivation will save India from a population explosion. When we are bringing 4 million acres of fresh land under plough. we are also adding 8 million new mouths a year, by which our percapita income is more or less static.

So to raise the standard of living of the Masses, to increase the per-capita income, to eradicate poverty, mal-nutrition and ignorance, an immediate check on the population growth is inevitable.

It is reported in the 1951 census that "even the most optimistic estimates of increased production, there would be marked failure to produce the necessities for living for the population of India by 1971.

To quote "Coale and Hoover" that if the birth rate remains unchanged, India will be unable to achieve an economic break through from its State of under-development and unemployment, even if all the other conditions favour it"

By investing a total outlay of Rs. 9,600 crores in the previous two five year plans, it is said that the country was able to provide employment only to 12 million people, having another 11 million unemployed i.e. by investing 9,600 crores, employment provided is only for 12 million. So, for finding additional employment for a person, on an average, India require Rs. 8000, which is too big. It is also estimated that in the IIIrd Five year Plan period we have to find out job for 23 million people. For that, India will have to invest a sum of Rs. 14,000 crores in the III Plan, which is rather impossible to her. India has only nearly 2.4% of the total Land of the world, but also she has nearly 14% of the world population. So a check on population by imparting Family Planning education and inducing small family habit to the citizens of this vast country, is an urgent necessity.

Rural India is real India. The orthodox masses and their crude and old notions have not yet changed much. The social revolution is still in its primary stage. It requirs much more emphasis andpush from all directions for its speedy forward march. The Public Health field staff, who are in direct contact with the rural masses can do yoemen services to the nation; if their energy, and experience are utilized for Family Planning education and propaganda.

It is a national problem. To solve this vital problem an integrated approach in every sphere is needed. For the happiness and harmony of the family, for the progress and prosperity of the nations, Family Planning shall become an integral part of all other heal th and weatlh schemes. It is a " *Definite must* " for India.

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2 **The Population of India — By Davis Kingsly**

3 **A case study of India's Prospectus by Coale Ansley and Hoover Edgas "**

The Material Section of the Health Education Bureau has the following 16 mm. Films on "Family Planning" and "Five Year Plans"

FAMILY PLANNING

Tamil 135.4 meters B & W 12¼ Mints.

Over population is one of the major problems of this country today and family planning is the answer to it. This documentary brings out the advantages of having small families with children born at properly spaced intervals.

PLANNED PARENTHOOD

Tamil and Telugu 97.3 meters B & W 9 Mints.

Our population is a major determining factor in the economy of this country. The film underlines the need for planned parent hood by contrasting the unhappy life of a large family with the happiness that comes to a small one that has chosen to voluntarily limit its size.

PLANNED ACHIEVEMENTS

Tamil 140.3 meters B & W 13 Mints.

This documentary gives a report on the progress of India's first Five Year Plan. Tracing the achievements on the food front the community projects, the major river valley schemes, industries etc., it recalls in a graphic way the various phases of this mightys adventure. The changing face of the country as seen through the eyes of an Indian farmer is vividly recalled.

TOMORROW IS OURS

Tamil 233.1 meters B & W 19 Mints.

This documentary presents a comprehensive report on India's First Five Year Plan and gives an interesting picture of the targets achieved in various sectors.